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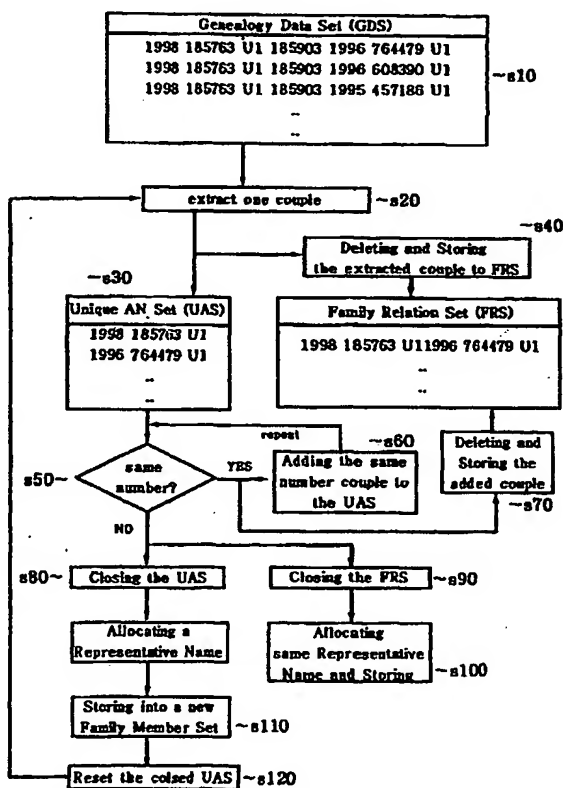
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(54) Title: A METHOD FOR FAST SEARCHING AND DISPLAYING A GENEALOGICAL TREE OF PATENTS FROM A  
PATENT DATABASE



(57) Abstract: The present invention discloses a method for fast searching a genealogical tree among patents recorded in a patent database and displaying the searched results. In details, the present invention extracts the patents having fields containing genealogical tree information from a patent database and makes the patent numbers in the same format and deletes the repeated paren patents and finally generates family relation sets and family member sets to generate the genealogical tree.

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**A METHOD FOR FAST SEARCHING AND  
DISPLAYING A GENEALOGICAL TREE OF PATENTS  
FROM A PATENT DATABASE**

**5    BACKGROUND OF THE INVENTION**

        This invention relates to a method for fast searching a genealogical tree among patents recorded in a patent database and displaying the searched results.

**10   PRIOR ART OF THE INVENTION**

        The more a society becomes industrialized, the more the information competition between companies resembles a war. Especially as the patent-related information has the information about technological rights of a corresponding company, it becomes more and more important. Accordingly now it became necessary to get more information from such patent-related information as soon as possible.

However so far most of commercial patent analysis systems have analyzed an object only based on the bibliographical information of each patent related to the object one-dimensionally and in fragments.

5

**TECHNICAL SUBJECTS OF THE INVENTION TO BE SOLVED**

The present invention provides new analysis objects and a new patent analysis method, whose analysis result level is different from the prior patent analysis systems'. Especially the present invention provides a patent analysis method can be easily find a genealogical route that shows a route of an object patent filed with a Patent Office from it's parent patents.

15

The information about such a genealogical tree could not be got at a time through the prior art but could be got after confirming the data investigated one

by one repeatedly through several methods. Therefore it took much time.

## SIMPLE EXPLANATION OF DRAWINGS OF THE PRESENT

### 5 INVENTION

Figure 1 illustrates a whole flowchart of a method for analyzing a genealogical tree quickly and providing the analyzed results.

Figure 2 illustrates a table for explaining the  
10 family relation set generated according to the present invention.

Figure 3 and 4 illustrate genealogical trees generated from a family relation set according to figure 2.

15 Figure 5 illustrates a screen layout of software made by using the present invention.

Figure 6 illustrates an enlarged genealogical tree according to the present invention.

## COMPOSITION OF THE INVENTION

The present invention that was invented to solve the above subjects comprises the following steps.

5           A method for fast analyzing genealogical trees related to a patent from a patent database (hereinafter we call them as "prior patent database") with fields having information about that via which genealogical tree the patent was filed from its parent patent, and  
10 for providing the analyzed results, the method comprises the steps for:

          extracting the filed year, the application number, the registered number about patents (hereinafter we call them as "child patent") having information in  
15 their genealogical fields among patents stored in the prior patent databases;

          selecting one among the predetermined patent classifications (hereinafter we call them as "patent

classification") from the extracted child patent's registered number and application number in order to classify the corresponding patents' kinds;

extracting the filed year and the application  
5 number of each patent (hereinafter we call them as "parent patent") corresponding to each application number recorded in each genealogical field of the child patent;

generating a genealogy data set that associates  
10 each of the extracted child patents with its parent patent as an independent pair and arrayed the pairs in a table, and recording the generated genealogy data set in the form of 'child patent's filed year - child patent's application number - patent classification  
15 (hereinafter we call it as "child patent number") - child patent's registered number - parent patent's filed year - parent patent's application number - patent classification (we call it as "parent patent

number") in order to standardize each patent number in the same format each other;

selecting a pair among the data pairs stored in the genealogy data set;

5 storing the child patent and the parent patent of the selected pair without distinction in the temporary storing means a 'Unique application number set' in the form of 'filing year - application number - patent classification for each patent (hereinafter we call  
10 each patent stored in the 'Unique application number set' as 'unique patent' and the number format recorded for each unique patent as 'unique number');

deleting the pair selected as the unique application number set from the genealogy data set and  
15 storing the deleted pair in a separate storing means a 'Family relation set' in the form of 'child patent number - parent patent number';

selecting each unique patent from the 'Unique



application number set' one by one sequentially and  
extracting all the pairs that the unique number of the  
selected unique patent is equal to the number of the  
child patent number or the parent patent number of the  
5 genealogy data set;

deleting the extracted pair from the genealogy  
data set with the same method;

storing the extracted pair in the 'Unique  
application number set' and 'Family relation set'  
10 without repeatedly storing the same unique number in  
the 'Unique application number set';

repeating the steps until a new unique number is  
not added into a 'Unique application number set';

closing the 'Unique application number set' when  
15 a unique number is not added any more into a 'Unique  
application number set';

closing a corresponding 'Family relation set' at  
the same time with the close of the 'Unique application

number set' and storing the closed 'Family relation set' in the name of the child patent number having the oldest filing date, which is being regarded as the representative name;

5        copying and storing the closed 'Unique application number set' in the same name with the representative name of the stored 'Family relation set' into a separate storing means, a 'Family member set' in the form of 'filing year - application number - patent  
10    classification - representative name' or 'filing year - application number - patent classification - registered number - representative name';

      resetting the data that were stored in the 'Unique application number set' temporarily after  
15    completion of the storing into the 'Family member set';

      selecting another pair from the pairs remaining in the genealogy data set and generating multiple Family relation sets and Family member sets;

arraying the generated the entire Family member set into a table set sequentially and storing;

checking if the number inputted by a user is one of the patent numbers, that is register number or application numbers, stored in the Family member set and if the check result is true, extracting the representative name of the Family member set to which the patent number belongs; and

extracting the Family relation set having the same representative name with the representative name extracted in the above step and reading the corresponding genealogical information from the extracted Family relation set and displaying the read information in the form of the genealogy tree to provide users with.

At this time, the step for displaying the genealogy tree from the Family relation set comprises

the steps of:

arraying the patent pairs stored in a Family  
relation set in the order (C1, C2, ... , Ci, ... ) of  
application number of a child patent that was filed  
5 quite recently;

arraying the parent patents corresponding to each  
arrayed child patent (Ci, i=1, 2, 3,...) in the order  
(Pi1, Pi2, Pi3,...) of application number of the parent  
patent that was filed quite recently;

10 searching a patent pair one by one sequentially  
from the most recently filed child patent's application  
number (C1) through all the child patents' application  
numbers (Ci), wherein the search begins from the parent  
patent's number (Pi1) which was most recently filed  
15 among the corresponding parent patents' numbers (Pi1,  
Pi2, Pi3,...) and the searched patent pair has the child  
patent numbers (Cm, m=2, 3, 4,...) same to the parent  
patent's number Pi1;

comparing between the parent patent numbers (Pm1, Pm2, Pm3,...) recorded in the searched pair Cm and the parent patent numbers (Pi1, Pi2, Pi3,...) of a child patent number Ci and deleting the same parent patent  
5 numbers from the parent patent numbers (Pi1, Pi2, Pi3,...) of the corresponding child patents;

repeating the above steps for a parent patent having next the most recently filed date among the yet remaining undeleted parent patent numbers and  
10 continuing the steps for all child patents and parent patents; and

displaying only the remaining undeleted parent patent numbers for each child patent number stored in the Family relation set by connecting lines having the  
15 filed year axis.

In the line connecting step, it is characteristic that if the patent to display was not filed by using a

regular application or the patent's right is not effective because of abandonment or cancellation, then the corresponding patent is not displayed only except when it is difficult to reveal that they have the same  
5 genealogy tree because the line connecting the corresponding patent filed by an irregular application with other patents in the same genealogy tree is disconnected.

10 On the other hand, it is desirable that the present invention further comprises the steps of:

if the patent to display was not filed by using a regular application or the patent's right is not effective because of abandonment or cancellation,  
15 storing the patent not to display on a genealogy tree into a separate storing means of a computer;

if a user wants, extracting the stored patents hidden on a genealogy tree and the child patents whose

parent patents are the stored patents hidden on a  
genealogy tree and further displaying the relationship  
of the extracted child patents and parent patents on a  
genealogy tree; and

5 if a user wants, displaying the list of the  
stored hidden patents.

And it is desirable that each patent to be  
displayed on a genealogical tree is displayed in a box  
10 form having a constant size and if a user lays a mouse  
cursor on the box, then the bibliographical information  
about the corresponding patent is displayed.

At this time, it is desirable that if a user lays  
a mouse cursor on the box and clicks the right button  
15 of the mouse, then a screen to ask whether the user  
wants to see the full text about the corresponding  
patent is displayed and if the user selects the full  
text, then the full text is provided.

And it is desirable that if a user lays a mouse cursor on the box and clicks the right button of the mouse, then a screen is displayed to ask whether the user wants only patents having the same applicants with the corresponding patent, the same inventors with the corresponding patent, the same IPC classification code with the corresponding patent or the same UPC classification code with the corresponding patent to be displayed emphatically on a genealogical tree being displayed currently, and if the user selects one of the same applicant, inventor, IPC classification code and UPC classification code, then the patents corresponding to the selected condition are displayed emphatically on the genealogical tree.

And at the present invention it is desirable that if a user selects a patent displayed on a genealogical tree by using a mouse cursor, then only the patents described directly in the fields for a genealogical



tree in prior patent databases are extracted and only the connection lines between the selected patents and the extracted patents on a genealogical tree are displayed emphatically.

5

As a preferred embodiment of the present invention, which is based on patent database according to the present invention, the prior patent database can be made from the US registered patent database.

10

In this case it is preferable that the genealogical tree information fields contain 'Patent application case text' of the first page of US patent application or contents recorded in 'Related US application data' or contents recorded between  
15 'patent's title' of a patent application and 'background of the invention'.

And it is preferable that the objects of the right displayed on a genealogical tree comprises

utility patents including laid-opened or issued  
patent/utility regular applications, provisional  
applications, reissued patents, applications withdrawn  
to avoid the duplicated right, applications canceled  
5 because of the continuous application, and co-  
applications and design patents.

And it is preferable that if the corresponding  
patent corresponds to a utility classification, then  
'U1' is allocated as a patent classification  
10 information, or else if corresponding to a design  
classification, then 'D1' is allocated, or else if  
corresponding to a provisional application, then 'P1'  
is allocated, wherein if the data recorded in the prior  
patent databases is recorded incorrectly and the  
15 different patents have the same number, then to the  
last number of the above patent classification  
information in order to distinguish the processed data  
a new number like 2, 3, 4, ... , is allocated.

At this time it is preferable that the present invention further comprises the steps of:

by a user displaying the list of the related  
5 patents on a screen after searching the patents using  
the prior patent databases and especially for the  
patents having the genealogical tree information among  
the list making quick search by using the registered  
number or application number of the family member set  
10 and checking whether the number inputted by a user is  
one of the registered patent number or application  
number stored in the family member set and if the  
inputted number is one of the registered patent number  
or application number, then displaying the mark on a  
15 screen; and

if a user selects a patent having the separately  
displayed mark, then extracting the genealogical tree  
of the selected patent from the family member set and

displaying or else if a user wants a genealogical tree,  
then generating a genealogical tree from the family  
relation set and displaying.

5           And also it is preferable that the present  
invention further comprises a step of generating a  
database from the prior patent databases, which stores  
and operates only the genealogical tree information and  
generating the genealogical tree information or  
10 genealogical tree according to the user's search  
results and displaying.

And it is preferable that in case of displaying  
and providing a genealogical tree, according to a  
15 user's selection each patent displayed on a  
genealogical tree is displayed by using one of  
application number, registered year, registered number,  
inventor, IPC classification, UPC classification,

applicant and provided.

Hereinafter we explain the present invention more detailed by referencing the attached drawings.

5           Figure 1 illustrates a whole flowchart of a method for analyzing a genealogical tree quickly and providing the analyzed results.

At first in the present invention the filed year, the application number, the registered number about  
10 patents (hereinafter we call them as "child patent") having information in their genealogical tree fields among patents stored in the prior patent database are extracted and one among the predetermined patent classifications (hereinafter we call them as "patent  
15 classification") from the extracted child patent's registered number and application number in order to classify the corresponding patents' kinds is selected.

Figure 1 is explaining about a case the prior

patent database were constructed based on US registered  
patent database.

At this time, the genealogical tree information  
fields contain 'Patent application case text' of the  
5 first page of US patent application or contents  
recorded in 'Related US application data' or contents  
recorded between 'patent's title' of a patent  
application and 'background of the invention'.

If the corresponding patent corresponds to a  
10 utility classification, then 'U1' is allocated, or else  
if corresponding to a design classification, then 'D1'  
is allocated, or else if corresponding to a provisional  
application, then 'P1' is allocated, or else if the  
data recorded in the prior patent databases is recorded  
15 incorrectly and the different patents have the same  
number, then to the last number of the above patent  
classification information in order to distinguish the  
processed data a new number like 2, 3, 4, ... , is

allocated.

A genealogy data set is generated, wherein the genealogy data set is associated each of the extracted child patents with a parent patent of each extracted  
5 child patent as an independent pair and arrayed the pairs in a table.(step 10)

And the generated genealogy data set is recorded in the form of 'child patent's filed year - child patent's application number - patent classification -  
10 child patent's registered number - parent patent's filed year - parent patent's application number - patent classification in order to standardize each patent number in the same format each other.

A pair is selected among the data pairs stored in  
15 the genealogy data set.(step 20)

The child patent and the parent patent of the selected pair are stored without distinction in the temporary storing means a unique application number

set.(step 30)

At this time, each patents is stored in the form of 'filing year - application number - patent classification for each patent. And the set selected as  
5 the unique application number set from the genealogy data set is deleted and the deleted pair is stored in a separate storing means a family relation set in the form of 'child patent number - parent patent number'.(step 40)

10 Each unique patent is selected from the unique application number set one by one sequentially and it is examined whether the selected patent number is equal to the child patent number of the genealogy data set. After the examination, it is examined whether the  
15 selected patent number is equal to the parent patent number of the genealogy data set. (step 50)

If the selected patent number is equal to the number of the child patent number or the parent patent



number of the genealogy data set, then extracts corresponding pairs and stores in the unique application number set without repeatedly storing the same patent number in the unique application number  
5 set.(step 60)

And the extracted pair is deleted from the genealogy data set and the extracted pair is stored in the family relation set. (step 70)

The above steps are repeated until a new unique  
10 number is not added into a unique application number set and the unique application number set is closed when a unique number is not added any more into the unique application number set.(step 80)

And the corresponding family relation set at the  
15 same time with the close of the unique application number set is closed (step 90) and the closed family relation set is stored in the name of the child patent number having the oldest filing date, which is being

regarded as the representative name. (step 100)

The closed unique application number set is copied and stored in the same name with the representative name of the stored family relation set into a separate storing means, a family member set in the form of 'filing year - application number - patent classification - representative name' or 'filing year - application number - patent classification - registered number - representative name'. (step 110)

The data that were stored in the unique application number set temporarily is reset after completion of the storing into the family member set. (step 120)

Another pair is selected from the pairs remaining in the genealogy data set and generating multiple family relations set and family member set and all generated the family member sets are arrayed into a table set sequentially and stored.

And the invention checks if the number inputted by a user is one of the patent numbers, register numbers and application numbers stored in the family member set and if the check result is true, then  
5 extracts the representative name of a family member set which the patent number belongs to and extracts the family relation set having the same representative name with the representative name extracted in the above step and reads the corresponding genealogical  
10 information from the extracted family relation set and displays the read information in the form of the genealogy tree to provide users with.

Figure 2 illustrates a table for explaining the  
15 family relation set generated according to the present invention. As shown in the figure 2, child patents and parent patents are arrayed. For convenience, we define a patent with greater number was filed more recently

than other patents.

According to the left table of the figure 2, a child patent '9' has parent patents '7', '4', '3', '2', '1' and a child patent '8' has parent patents '5', '2', '1'. Other child patents '7', '6', '5', '3', '2' has  
5 parent patents as shown in the table of the figure 2.

The present invention searches a patent pair one by one sequentially from the quite recently filed child patent's application number '9' through all the child  
10 patents' application numbers, wherein the search begins from the parent patent number '7' which was filed quite recently among the parent patent numbers of the child patent '9' and checks whether the parent patent number '7' is consisting of the child patent numbers ('8', '7',  
15 '6', '5', '3', '2') of other pairs.

According to figure 2, a parent patent '7' of a child patent '9' is used as a child patent of other patent pairs. Therefore in this case the invention

compares the parent patents (4, 3, 2, 1) of another  
child patent '9' except the corresponding number '7'  
with the parent patents (4, 3, 2, 1) of the child  
patent '7' and if there are the same numbers, the same  
5 numbers are deleted from the parent patent group of a  
child patent '9'.

As shown in the right table of the figure 2, the  
patents '4, 3, 2, 1' were deleted from a parent patent  
group of a child patent '9' because the patents '4, 3,  
10 2, 1' are the same patents.

If the above steps were finished for a parent  
patent ('7'), which was filed most recently among the  
parent patents of a child patent '9', then the  
invention repeats the above steps for a parent patent  
15 having the most recently filed date among the parent  
patent numbers remaining undeleted yet.

At the table illustrated in the figure 2 there  
are no such parent patents for a child patent '9' and

so the invention moves to a child patent '8', which was filed at the next recent date and deletes a parent patent '5' of a child patent '8' as described in the above.

5           In the figure 2 the parent patents remaining undeleted were displayed thickly and the deleted parent patents were displayed blurredly.

          Like the above method only for the remaining undeleted parent patents for each child patent number  
10   stored in the family relation set a genealogical tree is made by connecting lines having the filed year axis.

          Figure 3 and 4 illustrate genealogical trees generated from a family relation set according to figure 2.

15           If a patent to display was not filed by using a regular application or the patent's right is not effective because of abandonment or cancellation, then the corresponding patent is not displayed only except

when it is difficult to show that they have the same  
genealogy tree because the line connecting the  
corresponding patent filed by an irregular application  
with other patents of the same genealogy tree is  
5 disconnected.

That is, in figure 3 a patent '2' is a patent  
corresponding to a provisional application or is not  
effective because the patent was abandoned or canceled.  
Accordingly if the patent '2' is not displayed as in  
10 figure 4, then the genealogical relationship with other  
patents of patents '5' and '8' cannot be seen.

Accordingly in this case although the  
corresponding patent was filed via a non-regular  
application or its right is not effective any more  
15 because of the abandonment or cancellation for the  
patent, if they are not displayed on a genealogical  
tree, then the connection lines with other patents are  
cut and it may be difficult to display that they belong

to the same genealogical tree, they are displayed on a genealogical tree as in figure 3.

Figure 5 illustrates a screen constitution of software made by using the present invention.

And figure 6 illustrates an enlarged genealogical tree according to the present invention.

As shown, it is preferable that each patent displayed on a genealogical tree is displayed in a certain sized box. And also it is preferable that in this case, if a user lays a mouse cursor upon the box, then the bibliographic information corresponding to the patent is displayed.

At this time, it is desirable that if a user lays a mouse cursor on the box and clicks the right button of the mouse, then a screen to ask whether the user wants to see the full text about the corresponding patent is displayed and if the user selects the full



text, then the full text is provided.

And it is desirable that if a user lays a mouse cursor on the box and clicks the right button of the mouse, then a screen is displayed to ask whether the user wants that only the patent having the same applicants with the corresponding patent or the same inventors with the corresponding patent or the same IPC classification code with the corresponding patent or the same UPC classification code with the corresponding patent are displayed emphatically on a genealogical tree being displayed currently, and if the user selects one of the same applicants, inventors, IPC classification code and UPC classification code, then the patents corresponding to the selected conditions are displayed emphatically on a genealogical tree.

And it is desirable at the present invention that if a user selects a patent in a box displayed on a genealogical tree using a mouse cursor, then the only

patents described directly in the fields for a  
genealogical tree in prior patent databases are  
extracted and the only connection lines between the  
selected patents and the extracted patents on a  
5 genealogical tree are displayed emphatically.

But software developers can modify such a  
function variously and it is apparent that any  
modifications of the present invention belong to the  
present invention as far as they apply the present  
10 invention.

#### THE EFFECTS OF THE PRESENT INVENTION

It is possible to see whether an object patent  
was filed from any parent patent via any genealogical  
tree at a glance according to the present invention.

15 Accordingly it is possible to catch the  
competitor's technology development strategy at a  
glance only by simple operation according to the  
present invention.

**WHAT IS CLAIMED:**

1. A method for fast analyzing genealogical trees related to a patent from patent database (hereinafter we call them as "prior patent database") with fields  
5 having information about that via any genealogical tree the patent was filed from its parent patent, and for providing said analyzed results, the method comprising the steps of:

extracting the filed year, the application number,  
10 the registered number about patents (hereinafter we call them as "child patent") having information in their genealogical tree fields among patents stored in the prior patent database;

selecting one among the predetermined patent  
15 classifications (hereinafter we call them as "patent classification") from said extracted child patent's registered number and application number in order to classify the corresponding patents' kinds;

extracting the filed year and the application  
number of each patent (hereinafter we call them as  
"parent patent") corresponding to each application  
number recorded in each genealogical tree field of the  
5 child patent;

generating a genealogy data set that associated  
each of said extracted child patents with a parent  
patent of each extracted child patent as an independent  
pair and arrayed the pairs in a table, and recording  
10 the generated genealogy data set in the form of 'child  
patent's filed year - child patent's application number  
- patent classification (hereinafter we call it as  
"child patent number") - child patent's registered  
number - parent patent's filed year - parent patent's  
15 application number - patent classification (we call it  
as "parent patent number") in order to standardize each  
patent number in the same format each other;

selecting a pair among the data pairs stored in

the genealogy data set;

storing the child patent and the parent patent of  
said selected pair without distinction in the temporary  
storing means a unique application number set in the  
5 form of 'filing year - application number - patent  
classification for each patent (hereinafter we call  
each patent stored in the unique application number set  
as 'unique patent' and the number format recorded for  
each unique patent as 'unique number');

10 deleting the pair selected as the unique  
application number set from the genealogy data set and  
storing the deleted pair in a separate storing means a  
family relation set in the form of 'child patent number  
- parent patent number';

15 selecting each unique patent from the unique  
application number set one by one sequentially and  
extracting all the pairs where the unique number of  
said selected unique patent is equal to the number of

the child patent number or the parent patent number of  
the genealogy data set;

deleting said extracted pair from the genealogy  
data set with the same method described in the above;

5 storing said extracted pair in the unique  
application number set and the family relation set  
without repeatedly storing the same unique number in  
the unique application number set;

repeating said steps until no unique number is  
10 newly added into the unique application number set;

closing the unique application number set when a  
unique number is not added any more into the unique  
application number set;

closing the corresponding family relation set at  
15 the same time with the close of the unique application  
number set and storing said closed family relation set  
in the name of the child patent number having the  
oldest filing date, which is regarded as the

representative name;

copying and storing said closed unique  
application number set in the same name with the  
representative name of said stored family relation set  
5 into a separate storing means, a family member set in  
the form of 'filing year - application number - patent  
classification - representative name' or 'filing year -  
application number - patent classification - registered  
number - representative name';

10 resetting the data that were stored in the unique  
application number set temporarily after completion of  
the storing into the family member set;

selecting another pair from the pairs remaining  
in the genealogy data set and generating multiple  
15 family relation set and family member set;

arraying all the generated family member sets  
into a table set sequentially and storing;

checking if the number input by a user is one of

the patent numbers, that is a registered number or an application number stored in the family member set and if the check result is true, extracting the representative name of a family member set which the patent number belongs to; and

extracting the family relation set having the same representative name with the representative name extracted in the above step and reading the corresponding genealogical information from said extracted family relation set and displaying said read information in the form of the genealogy tree to provide users with.

2. A method as set forth in claim 1, wherein said step for displaying the genealogy tree from the family relation set comprises the steps of:

arraying the patent pairs stored in a family relation set in the order (C1, C2,.. Ci,..) of



application number of a child patent that was filed quite recently;

arraying the parent patents corresponding to each arrayed child patent ( $C_i$ ,  $i=1, 2, 3, \dots$ ) in the order  
5 ( $P_{i1}, P_{i2}, P_{i3}, \dots$ ) of application number of the parent patent that was filed quite recently;

searching a patent pair one by one sequentially from the quite recently filed child patent's application number ( $C_1$ ) through all the child patents' application numbers ( $C_i$ ), wherein the search begins  
10 from the parent patent's number ( $P_{i1}$ ) which was filed quite recently among the corresponding parent patents' numbers ( $P_{i1}, P_{i2}, P_{i3}, \dots$ ) and the searched patent pair has the parent patent's number  $P_{i1}$  consisting of the  
15 child patent numbers ( $C_m$ ,  $m=2, 3, 4, \dots$ ) of other pairs;

comparing the parent patent numbers ( $P_{m1}, P_{m2}, P_{m3}, \dots$ ) recorded in the searched pair  $C_m$  and the parent patent numbers ( $P_{i1}, P_{i2}, P_{i3}, \dots$ ) of a child patent

number  $C_i$  and deleting the same parent patent numbers from the parent patents numbers ( $P_{i1}$ ,  $P_{i2}$ ,  $P_{i3}$ ,...) of the corresponding child patents;

repeating the steps for a parent patent having  
5 next the most recently filed date among the yet remaining undeleted parent patent numbers and continuing the steps for all child patents and parent patents; and

displaying only the remaining undeleted parent  
10 patent numbers for each child patent number stored in the family relation set by connecting lines having the filed year axis.

3. A method as set forth in claim 2, wherein in  
15 said step for line connecting, it is characteristic that if the patent to display was not filed by using a regular application or the patent's right is not effective because of abandonment or cancellation, then

the corresponding patent is not displayed only except when it is difficult to show that they have the same genealogy tree because the line connecting the corresponding patent filed by an irregular application  
5 with other patents of the same genealogy tree is disconnected.

4. A method as set forth in claim 3, wherein said method further comprises the steps of:

10 if the patent to display was not filed by using a regular application or the patent's right is not effective because of abandonment or cancellation, storing the patent not to display on a genealogy tree into a separate storing means of a computer;

15 if a user wants, extracting the stored patents not to display on a genealogy tree and the child patents whose parent patents are the stored patents not to display on a genealogy tree and further displaying

the relationship of the extracted child patents and parent patents on a genealogy tree; and

if a user wants, displaying the list of the stored patents not to display.

5

5. A method as set forth in any one of claims 1 - 4, wherein in case said prior patent database was constructed by using US registered patent databases,

the genealogical tree information fields contain  
10 'Patent application case text' of the first page of US patent application or contents recorded in 'Related US application data' or contents recorded between 'patent's title' of a patent application and 'background of the invention',

15 and the objects of the right displayed on a genealogical tree comprises utility patents including laid-opened or issued patent/utility model regular applications, provisional applications, reissued

patents, applications withdrawn to avoid the duplicated right, applications canceled because of the continuous application and co-applications, and design patents,

and if the corresponding patent corresponds to a  
5 utility classification, then 'U1' is allocated, or else  
if corresponding to a design classification, then 'D1'  
is allocated, or else if corresponding to a provisional  
application, then 'P1' is allocated, or else if the  
data recorded in the prior patent databases are  
10 recorded incorrectly and the different patents have the  
same number, then to the last number of the above  
patent classification information in order to  
distinguish the processed data a new number like 2, 3,  
4, ... , is allocated.

15

6. A method as set forth in claim 5, wherein said  
method further comprises the steps of:

by a user displaying the list of the related

patents on a screen after searching the patents using  
the prior patent databases and especially for the  
patents having the genealogical tree information among  
the list making quick search by using the registered  
5 number or application number of the family member set  
and checking whether the number inputted by a user is  
one of the registered patent number or application  
number stored in the family member set and if the  
inputted number is one of the registered patent number  
10 or application number, then displaying the mark on a  
screen; and

if a user selects a patent having the separately  
displayed mark, then extracting the genealogical tree  
of the selected patent from the family member set and  
15 displaying or else if a user wants a genealogical tree,  
then generating a genealogical tree from the family  
relation set and displaying.

7. A method as set forth in claim 5, wherein said method further comprises a step of generating a database from the prior patent databases, which stores and operates only the genealogical tree information and  
5 generating the genealogical tree information or genealogical tree according to the user's search results and displaying.

8. A method as set forth in claim 5, wherein it  
10 is characteristic that in case of displaying and providing a genealogical tree, according to a user's selection each patent displayed on a genealogical tree is displayed by using one of application number, registered year, registered number, inventor, IPC  
15 classification, UPC classification, applicant and provided.

9. A method as set forth in any one of claims 1 -

4, wherein it is characteristic that each patent to be  
displayed on a genealogical tree is displayed in a box  
form having a constant size and if a user lays a mouse  
cursor on the box, then the bibliographical information  
5 about the corresponding patent is displayed.

10. A method as set forth in claim 9, wherein it  
is characteristic that if a user lays a mouse cursor on  
the box and clicks the right button of the mouse, then  
10 a screen to ask whether the user wants to see the full  
text about the corresponding patent is displayed and if  
the user selects the full text, then the full text is  
provided.

15 11. A method as set forth in claim 9, wherein it  
is characteristic that if a user lays a mouse cursor on  
the box and clicks the right button of the mouse, then  
a screen is displayed to ask whether the user wants the



only the patents to be displayed emphatically on a  
genealogical tree being displayed currently having the  
same applicants with the corresponding patent or the  
same inventors with the corresponding patent or the  
5 same IPC classification code with the corresponding  
patent or the same UPC classification code with the  
corresponding patent, and if the user selects one of  
the same applicants, inventors, IPC classification code  
and UPC classification code, then the patents  
10 corresponding to the selected conditions are displayed  
emphatically on the genealogical tree.

12. A method as set forth in claim 9, wherein it  
is characteristic that if a user selects a patent  
15 displayed on a genealogical tree by using a mouse  
cursor, then the only patents described directly in the  
fields for the genealogical tree in prior patent  
databases are extracted and the only connection lines

between the selected patents and the extracted patents  
on the genealogical tree are displayed emphatically.

FIG 1

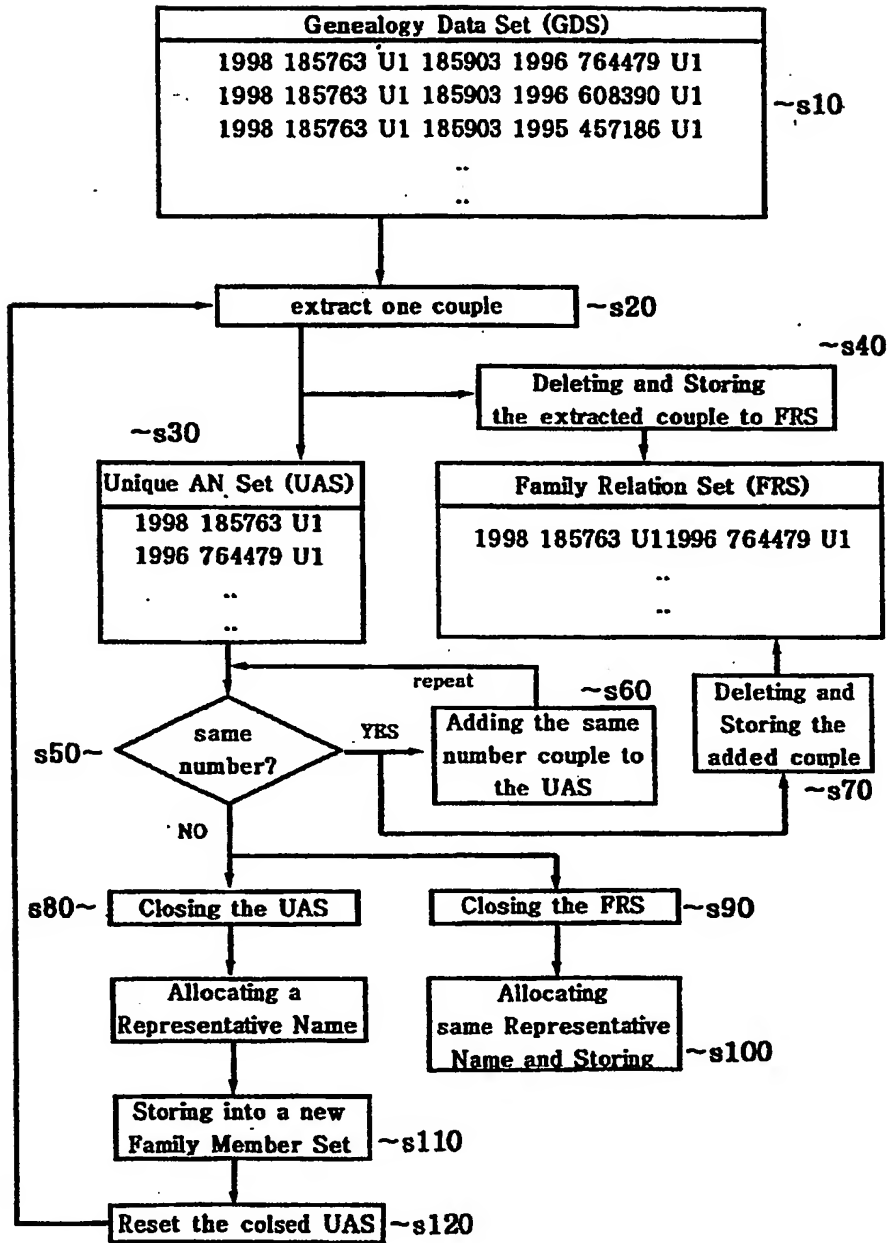


FIG 2

| Child Patent | Parent Patent |   | Child Patent | Parent Patent |
|--------------|---------------|---|--------------|---------------|
| 9            | 7             |   | 9            | 7             |
| 9            | 4             |   | 9            | 4             |
| 9            | 3             |   | 9            | 3             |
| 9            | 2             |   | 9            | 2             |
| 9            | 1             |   | 9            | 1             |
| 8            | 5             |   | 8            | 5             |
| 8            | 2             |   | 8            | 2             |
| 8            | 1             |   | 8            | 1             |
| 7            | 4             | ⇒ | 7            | 4             |
| 7            | 3             |   | 7            | 3             |
| 7            | 2             |   | 7            | 2             |
| 7            | 1             |   | 7            | 1             |
| 6            | 3             |   | 6            | 3             |
| 6            | 2             |   | 6            | 2             |
| 6            | 1             |   | 6            | 1             |
| 5            | 2             |   | 5            | 2             |
| 5            | 1             |   | 5            | 1             |
| 3            | 2             |   | 3            | 2             |
| 3            | 1             |   | 3            | 1             |
| 2            | 1             |   | 2            | 1             |

FIG 3

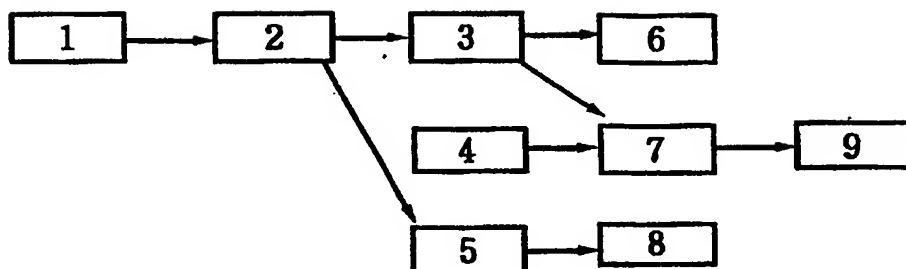
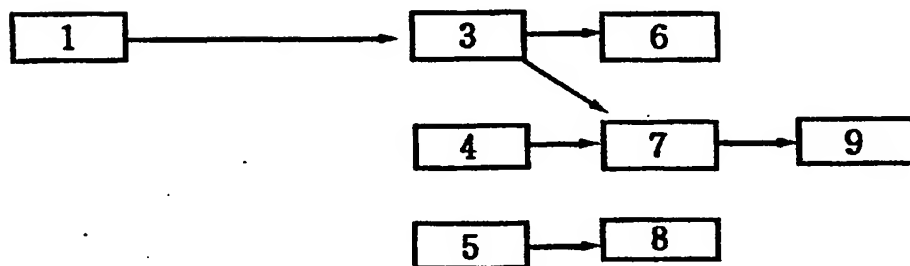


FIG 4



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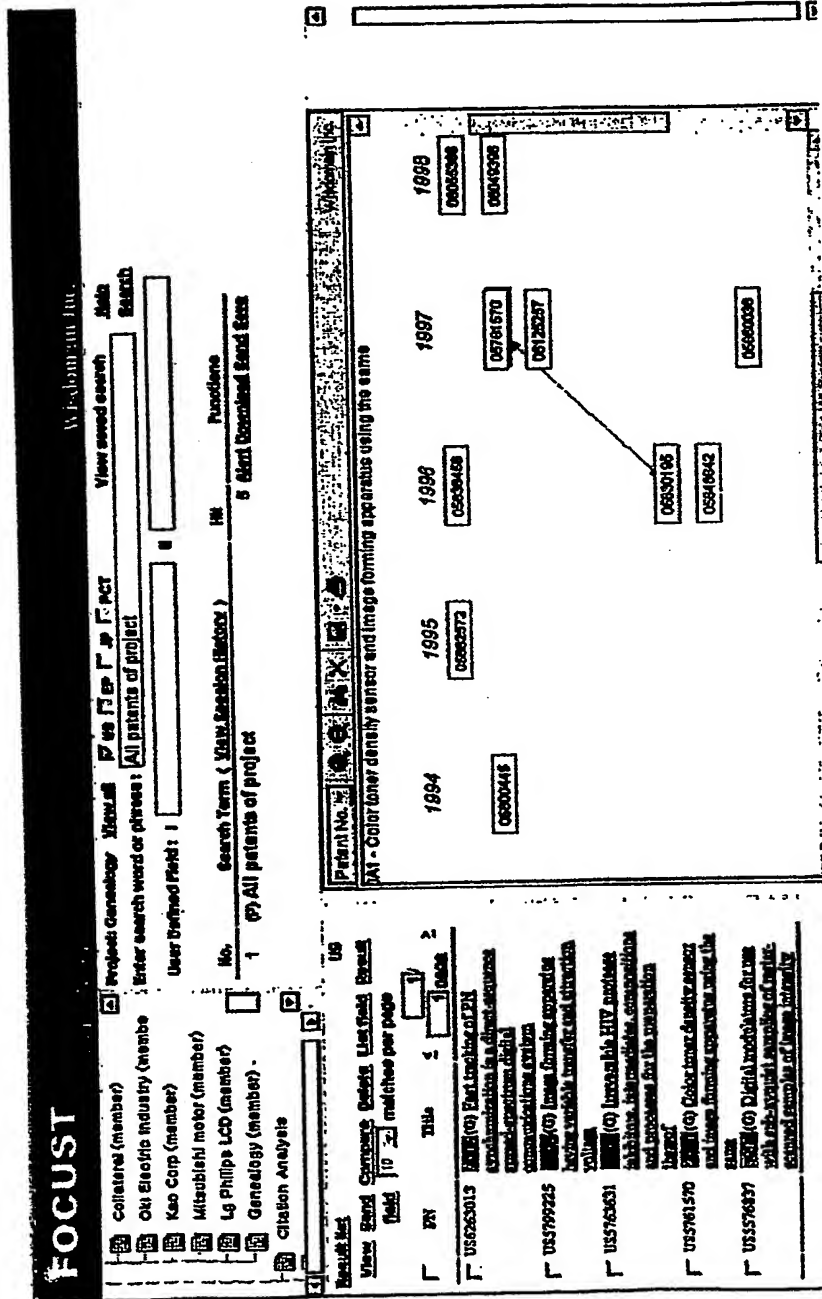


FIG. 5

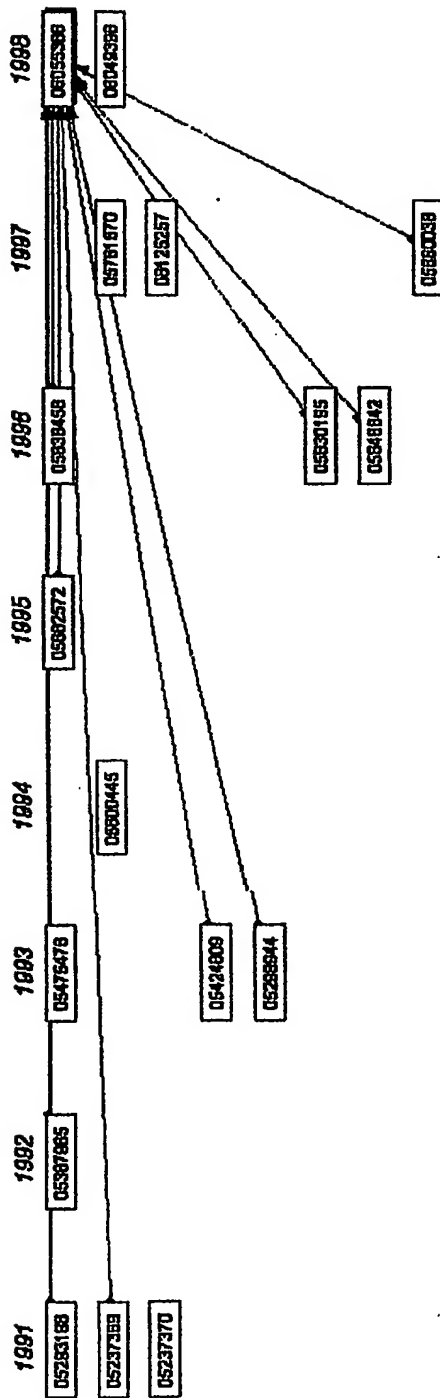


FIG. 6

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR02/01044

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC7 G06F 17/30

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC7 G06F 17/30

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

KOREAN PATENTS AND APPLICATIONS FOR INVENTIONS SINCE 1975

KOREAN UTILITY MODELS AND APPLICATIONS FOR UTILITY MODELS SINCE 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

FPD, KIPASS, PAJ

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category* | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|-----------|---|-----------------------|
| A         | EP 1139238 (NISSAN MOTOR COMPANY, LIMITED) Oct. 4, 2001<br>See the whole document   | 1-12                  |
| A         | KR 2001-38078 ( WIPS CO.) May. 15, 2001<br>See the whole document.                  | 1-12                  |
| A         | JP 2001-92851 (KOTO GI JITSU KUMIAI) APR. 6, 2001<br>See the whole document.        | 1-12                  |
| A         | JP 06-231141 (HITACHI SOFTWARE ENG CO LTD) Aug. 19, 1994<br>See the whole document. | 1-12                  |
| A         | JP 08-221435 (HITACHI LTD) Aug. 30, 1996<br>See the whole document.                 | 1-12                  |

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

21 DECEMBER 2002 (21.12.2002)

Date of mailing of the international search report

23 DECEMBER 2002 (23.12.2002)

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